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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/625,406 | 07/23/2003 | G. Lawrence Krablin | TN129 | 9074 |
| 7590 UNISYS Corporation Unisys Way, MS/E8-114 Blue Bell, PA 19424-0001 | | | | |
| EXAMINER | | | | |
| FRANCIS, MARK P | | | | |
| ART UNIT | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/625,406

Applicant(s)

KRABLIN ET AL.

Examiner

MARK P. FRANCIS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 14-16 and 27-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 14-16 and 27-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 25, 2008 has been entered.
2. Claims 1-3, 14-16, and 27-29 have been examined.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
 4. A person shall be entitled to a patent unless –
 - (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
5. Claims 1-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Srivastava. (U.S. Pat 5,539,907)

Independent claims

With respect to claims 1,14, and 27, Srivastava discloses a translator (e.g. See Fig. 3, element 51 Translator and related text) operating on a processor for translating

compiled programming code from a first code state to a second code state,(Col 4:12-26, "...A compiler translates the high-level language of the program to object code..."), the first compiled code state comprising machine specific object code corresponding to a first processor instruction set(Col 4:45-55, "...transforms the program in object module form,...selected from a library of pre-compiled object modules...") and the second compiled code state comprising machine-specific object code corresponding to a different processor instruction set,(Col 4:45-60, "...which is independent of any one particular computer systems...The specific architectures of target computer systems...") the programming code in the first code state comprising a plurality of basic blocks, (Col 3:55-67, "...the procedures including basic blocks...")each basic block comprising a set of instructions,(Col 3:55-62, "...the basic blocks including instructions...") at least one basic block ending in a dynamic branch,(Col 4:1-10, "...by monitoring conditional branch instructions at the end of basic blocks...") the dynamic branch being a transfer to one of a set of destinations based on a calculation of a destination address, (Col 5:25-35, "...addressing schemes...")the translator: identifying the plurality of basic blocks in the first code state of the programming code; (Col 6:1-15, "...The basic blocks..") identifying links between the identified basic blocks; (Col 5:35-45, "...converts the program into a linked module...") constructing a control flow graph I representation (CFG) of the programming code based on the identified basic blocks and identified links, the CFG being in a preliminary form; (Col 6:35-45, "...create the control graphs...", Col 7:55-64, "...procedure flow graph...")

identifying at least one basic block ending in a dynamic branch; (Col 11:14-20, "...a user instrumentation routine branch...")

exploring, based on the CFG, (Col 6:35-45, "...create the control flow graphs...")all identified basic blocks that lead to the dynamic branch as far back as is necessary to fully determine a set of destination addresses for the dynamic branch, the set of destination addresses defining the set of destinations from the dynamic branch; (Col 6:35-53, "...reveals all possible execution destinations...")

examining the set of destinations to identify a branch table; (Col 6:25-40, "...The jump table...a set of branch tables...")

updating the CFG to reflect the set of destinations and the identified branch table; (Col 6:25-40, "...The jump table...a set of branch tables...")

translating the programming code from the first code state to the second code state based at least in part on the updated CFG. (Col 5:37-50, "...The translator converts the program into a linked module...")

Dependent claims

With respect to claims 2,15, and 28, the rejection of claims 1,14, and 27 are incorporated respectively and further, Srivastava discloses that the exploring step comprises the steps of for each explored basic block, constructing a corresponding code graph / representation (code graph) of the instructions in such basic block; (Col 7:55-67, "...procedure flow graph...")and traversing each code graph to determine the

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set of destination addresses from the dynamic branch.(Col 6:35-41, "...reveals all possible execution destinations...")

With respect to claims 3,16, and 29, the rejection of claims 2,15, and 28 are incorporated respectively and further, Srivastava discloses that each code graph is a rooted directed acyclic graph having interconnected nodes, (Col 5:9-25, "...a program call graph...") each node being one of an instruction node representing an instruction in the corresponding basic block; (Col 3:55-67, "...the basic blocks including instructions...")

an argument node representing an argument in the corresponding basic block;
an apply node edging to an instruction node and to an argument node and representing the application of such argument node to such instruction -node, the apply node in certain instances also being an argument node edged to by another node; (Col 6:25-40, "...The jump table...a set of branch tables...")

a stack node edging to a pair of argument nodes and acting as an argument node having the pair of argument nodes; (Col 7:55-67, "...procedure flow graph...")

a missing argument node representing a missing argument supplied from a different basic block; (Col 5:37-50, "...The translator converts the program into a linked module...")

and an alias node edged to by a stack node or apply node and edging to an argument remote from such stack node, and representing such remote argument to such stack node. (Col 7:55-67, "...procedure flow graph...")

Response to Arguments

6. Applicant's arguments filed September 26, 2007 have been fully considered but they are not persuasive. Following is the Examiner response.

With respect to claims 1,14, and 27, Applicant essentially argues that Srivastava does not teach or disclose translating the compiled machine code of a computer program into a second compiled code state where that second compiled code state comprises machine-specific object code corresponding to a different processor instruction set.

In response, the Examiner disagrees, Note Col 4:40-60, it is here that Srivastava teaches that the monitoring system includes a translator that transforms the object module form(first compiled code state) of the program into a single linked code module(Second compiled code state). Srivastava also indicates that the single linked code module can be in the form of an intermediate machine-independent register transfer language which is independent of any one particular computer system. Next Srivastava states that the specific architectures of target computer systems can be stored in a CPU architectures description. Therefore, Srivastava does teach translating the compiled machine code of a computer program into a second compiled code state where that second compiled code state comprises machine-specific object code corresponding to a different processor instruction set since the machine independent code executes on all types of machines and is different from the first.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK P. FRANCIS whose telephone number is (571)272-7956. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on (571)272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mark P. Francis

Patent Examiner

Art Unit 2193

/Lewis A. Bullock, Jr./

Supervisory Patent Examiner, Art Unit 2193

Application Number**Application/Control No.**

10/625,406

Examiner

MARK P. FRANCIS

**Applicant(s)/Patent under
Reexamination**

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